REMARKS/ARGUMENTS

Prior to this amendment, claims 1-54 and 56-95 were pending. By this amendment, claims 1, 43, 68, 69, 94 and 95 are amended leaving claims 1-54 and 56-95 pending consideration. A Request for Continued Examination ("RCE") is filed herewith. Applicants aver that no new matter has been added with this response.

In the Office Action, the Examiner rejected claims 1-43 and 68-95 under 35 USC §112, first paragraph, and claim 95 under 35 USC §112, second paragraph, and rejected claims 1-12, 14-15, 17-19 and 21-43 under 35 USC §103(a) as being anticipated by U.S. Patent No. 6,018,359 issued to Kermode et al. (hereinafter "Kermode") in view of U.S. Patent No. 6,732,325 issued to Tash et al. (hereinafter "Tash"), claims 68-74, 77, 80-85 and 87-94 under 35 USC §103(a) as being anticipated by U.S. Patent No. 5,926,205 issued to Krause et al. (hereinafter "Krause") in view of Tash, rejected claims 13, 16, 20, under 35 USC §103(a) as being unpatentable over Kermode in view of Tash and U.S. Patent No. 6,134,596 issued to Bolosky et al. (hereinafter "Bolosky"), and rejected claims 78 and 79 as being unpatentable over Krause in view of Tash and Kermode. Applicant notes with appreciation allowance of claims 44-54 and 56-67 and that claim 95 would be allowable if rewritten in independent form.

Examiner Interview

Applicants appreciate the telephone interview with the Examiner on January 25, 2006, where proposed claim amendments and the cited references were discussed.

35 USC §112 and §103 rejections

Claims 1, 43, 68, have been amended to more clearly recite the claimed subject matter with regard to the term "avoid looping" and to clarify that blocks are encoded into output symbols to be served to a client in an order independent of the output symbols previously received by the client. This element is not disclosed or suggested in the cited references.

Kermode describes a generalized scheme using a looping process where a client can simultaneously download segments, and portions thereof, from multiple channels. This approach deals with clients joining after a sequence of blocks (portions of the segments) have already begun being transmitted to the client. The blocks downloaded from each of the segments

being transmitted are joined together in a sequence to form a contiguous segment for playback. Uncoordinated looping is often very bandwidth inefficient, as a client might have to receive and process packets that correspond to blocks already received in order to get to the packets that the client happens to need and does not already have. Looping can be coordinated, wherein a client indicates where it is at in the receiving cycle and the transmitter transmits accordingly, but that requires a back channel.

Tash shows a Reed-Solomon encoding scheme that relies on encoding K input symbols to generate N output symbols, where N>K. This is a conventional fixed rate (rate = K / N) coding scheme. As is well known in the coding arts, N cannot be too much larger than K because of coding complexities and losses of more than R = N-K symbols prevents complete recovery of the K input symbols.

In such forward error correction (FEC) encoding schemes, the number of output symbols ("N") relative to the number of input symbols ("K") not much larger and is fixed before encoding begins. The number of redundant output symbols, R= N-K, is therefore also fixed, so the transmitter needs to know or guess at a loss rate of the transmission link ahead of time. This leads to inefficiencies if the loss rate is overestimated, and can lead to failure to recover input symbols if the loss rate is underestimated.

In Tash, this problem is dealt with by using a back channel, wherein if the client does not receive K error-free output symbols, the file cannot be recovered so the client needs to indicating to the sender which symbols need to be retransmitted using a back channel (see Tash, Fig. 1, item 184).

In contrast, the claimed partitioning is done so that the output symbols are encoded to be served to the client in an order independent of the output symbols previously received by the client. As should be apparent, if the partitioning is done independent on what a client received, different clients having received different output symbols (because of transmission losses or because the clients started listening at different times) can continue receiving the same stream and have the received symbols be useful. As should also be apparent, if the partitioning is done independent of what a client received, there is no need for a back channel because the transmitter does not need to care what is received and what is not received.

Tash does not disclose or suggest such features. In fact, by having a back channel, that reference suggests the opposite, namely that output symbols are encoded in an order that is dependent on what the client had previously received.

Krause is directed to an arrangement of blocks in an interleaved fashion and is concerned with clients joining a stream at different times. With the claimed output symbol generation, such structures are not needed, as enough output symbols are available. As the systems of Krause appear to rely on elements being in a particular order, that would not be combinable with Kermode to teach output symbols generated are independent of when a client begins a reception.

The remaining references do not make up for the shortcomings of Kermode, Tash, or Krause, alone or in combination. Thus, amended claims 1, 43, and 68 are allowable over the cited references.

Claims 2-42 and 95 depend from claim 1 and are allowable for at least the same reasons.

Claims 69 and 94 have been amended to more clearly recite the invention with regard to the term "avoid looping" and to clarify that blocks are encoded into output symbols received by a client in an order independent of the output symbols previously received by the client. This element is not disclosed or suggested in the cited references alone or in combination as described above. Therefore, allowance of claims 69 and 94 is respectfully requested.

Claims 70-93 depend from claim 69 and are allowable for at least the same reasons.

Allowable Subject Matter

Applicants appreciate allowance of claims 44-54 and 56-67.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

C. Bart Sullivan
Reg. No. 41,516

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 415-576-0200
Fax: 415-576-0300
CBS:rgy

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